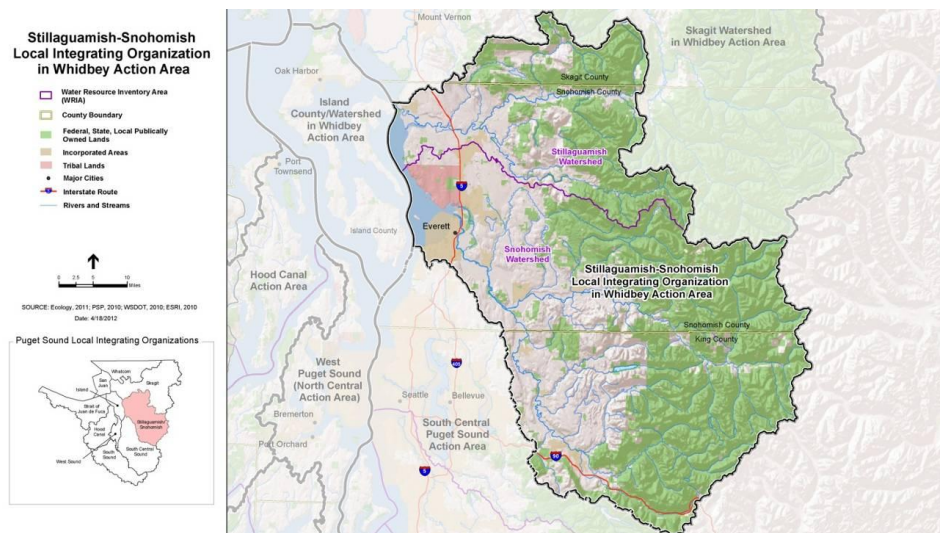


The Action Agenda in the Stillaguamish and Snohomish Watersheds

Profile

Snohomish River Watershed

The Snohomish River Basin in east central Puget Sound has long been known for its enviable quality of life characterized by attractive job opportunities, fertile agricultural lands and extensive timber resources, diverse outdoor recreation, extensive areas of public land, and abundant natural resources extending from Puget Sound to the Cascade crest. The basin's varied topography ranges from low, rolling terrain next to tidewater to the steep Cascade Mountains along the eastern border. The watershed lies in two counties—Snohomish and King—and covers an area of 1,856 square miles with over 1,700 identified rivers and tributaries. The Snohomish Basin is one of the fastest growing areas in Puget Sound with projected population growth of 59 percent from 2000 to 2030.



The Snohomish River empties into Puget Sound north of Everett, the region's third largest city and a major industrial and commercial center that includes the Port of Everett. Some of the best farmlands

remaining in Western Washington flank the Snohomish and the lower portions of its two major tributaries, the Skykomish and Snoqualmie Rivers. Forest lands and wilderness cover 74 percent of the basin; five percent is agricultural. Urbanization is concentrated near the estuary.

The estuary, where the nutrient rich waters of the Snohomish River come in contact with the saltwater of Possession Sound is home to at least 350 different kinds of birds and countless varieties of mammals and plants call this special place home, including blue heron, eagles, osprey, salmon, seals, and otter. It benefits people by acting as a natural filter that cleans water before it passes into the Sound and also slows floodwaters. In addition, a myriad of streams and creeks in the upper reaches of Puget Sound's second largest watershed flow through abundant forestlands and wilderness. This includes the popular Alpine Lakes and Wild Sky Wilderness Areas.

The Snohomish Basin has a long history of broad collaboration on issues ranging from flood protection to integrating mitigation and restoration needs in the Snohomish River Estuary. In recent years, this collaboration has extended to more robustly including farming interests and marine resources and needs to extend into water quality and protection issues.

Stillaguamish Watershed

The Stillaguamish Watershed drains roughly 700 square miles of Snohomish and Skagit Counties. The mainstream of the Stillaguamish River is formed by the North and South Forks, which descend from the foothills of the Cascades to a confluence at Arlington and flow westerly into Port Susan and South Skagit Bay. Spanning northern Snohomish and southern Skagit counties, major cities within the watershed include Arlington, Granite Falls, and Stanwood.

Staples of the early Western Washington economy, forestry and farming are still major players in the Stillaguamish watershed, where steep, lush forest slopes and a broad soil-rich delta provide ideal growing conditions. A unique characteristic of the Stillaguamish basin is its low level of commercial development along the I-5 corridor. It is one of the few largely undeveloped rural areas adjacent to major urban centers in Puget Sound. Residents in the basin feel a strong sense of community and pride in their area. Its rural nature provides a significant opportunity to protect key salmon habitat and restore or enhance properly functioning conditions.

The Stillaguamish watershed is home to an early collaborative effort to address watershed health called the Stillaguamish Watershed Council (formerly the Stillaguamish Implementation Review Committee). Local stakeholders, including Snohomish County, the Tulalip and Stillaguamish Tribes, farmers, forest land owners, citizens and local agency representatives committed in 1990 to take actions to improve water quality. Major public landholdings are managed by the US Forest Service, Washington State Department of Natural Resources, and Snohomish County. The Stillaguamish supports two of Puget Sound's twenty-two threatened populations of Chinook salmon. Land use in the portion of the watershed inhabited by salmon is 61 percent forestry, 22 percent rural residential, 15 percent agricultural, and two percent urban.

Stillaguamish and Snohomish Watersheds

The Stillaguamish and Snohomish watersheds combined are dominated by forestlands particularly in the upper mountainous portions of the region, with more than half in the Mount Baker-Snoqualmie National Forest or in state-owned forests managed by Washington Department of Natural Resources. The watersheds have close to 75 percent forestland use. Although much of the land is in public ownership, and is protected from residential development, there is still a significant risk of conversion to residential development on privately held lands. In the Snoqualmie watershed, for example, there are more than 500 forested parcels totaling more than 20,000 acres in the rural area at risk of being subdivided and developed. Recreation and tourism are important economic sectors in both watersheds, with opportunities for float trips, fishing, eagle watching, kayaking, camping, hunting, and backpacking. There are seven designated wilderness areas within the Whidbey Basin,²⁸ of which the Stillaguamish and Snohomish watersheds are an integral part, and several popular state parks, all which provide habitat protection and allow for outdoor recreation opportunities.

Unique Ecosystem Characteristics and Assets

The fifth largest freshwater system in Puget Sound is the Stillaguamish River, which drops from an elevation of 6,854 feet on Three Fingers Mountain to sea level at Port Susan and Skagit Bay. The Skagit River combined with the Snohomish and Stillaguamish Rivers has the largest freshwater influence from within the Puget Sound (excluding the Fraser River). The Snohomish River basin has the most returning Coho spawners between the Columbia River and the Canadian border, and produces 25 to 50 percent of all Coho in Puget Sound. Further, the Skykomish Chinook population has the highest abundance target in the Puget Sound Evolutionarily Significant Unit. Juvenile salmon from many rivers in Puget Sound use the pocket estuaries and nearshore areas of the Whidbey Basin to forage and rear as they adapt to saltwater conditions. Port Susan is the southernmost critical biodiversity area in Puget Sound (labeled a biodiversity hotspot by The Nature Conservancy and other environmental organizations). The region is also a major producer of forage fish such as herring, sand lance, and surf smelt. Eelgrass beds the Snohomish River delta area are among the largest found in Puget Sound, providing important spawning and forage habitat for forage fish, salmon, and other species. Upper reaches of the Stillaguamish and Snohomish systems support numerous resident and overwintering populations of eagles and other raptors.

Local Action Agenda Process

The Snohomish and Stillaguamish watersheds are working to develop a local process that will provide a forum for organizations to collaborate on and coordinate initiatives and strategies to advance the Action Agenda. The local integrating organization was only recently created. One of the first actions the Local Integrating Organization (LIO) will take is to revisit the local profile and identify a process to update the strategies, action and to develop near-term actions as well as to sequence and prioritize work that needs to be advanced. To develop the current draft, an Ad Hoc group that acted in place of a formal LIO during the summer and fall of 2011. This group identified over 100 draft strategies. These strategies reflect the best thinking of those individuals and agencies currently engaged in implementation of the Snohomish and Stillaguamish ecosystem recovery. This work will need to be further refined and vetted

²⁸ In the 2008 Action Agenda update, the Skagit, Island, and Stillaguamish and Snohomish Action Areas comprised one Action Area called the Whidbey Basin Action Area. A map of the Whidbey Basin Action Area can be found at the end of this chapter.

through the newly formed LIO over the next year. The Stillaguamish and Snohomish area has not yet identified near-term actions associated with these strategies. Those actions will flow from the sequencing/prioritization conversations. The Snohomish and Stillaguamish contributors also recognize and acknowledge that more local science needs exist, and the development of the full suite of local science needs is yet to be done; however, given the time constraints the Ad Hoc group was not able to identify a full suite of needs. The work to support developing a science agenda will be further refined over the coming year.

A tailored process was developed for the Snohomish and Stillaguamish areas to help facilitate updating the local strategies for the Action Agenda in the absence of an LIO. This process was developed to be a quick and flexible process. The steps were as follows:

1. Watershed groups (e.g., Snohomish Salmon Recovery Forum, Stillaguamish Watershed Council, Snoqualmie Watershed Forum, Snohomish Marine Resource Committee, etc.) and other organizations/representatives involved in these watersheds (e.g., tribes, county, conservation districts, cities, ports, etc.) worked to revise strategies based on 2008 Action Agenda information.
2. An Ad Hoc group of interested parties convened a one-day workshop to review and discuss the information compiled by watershed groups and other agencies and came to a common understanding regarding the working list of strategy ideas below.

The next steps will be to work with the Local Integrating Organization to further vet and refine the strategies and near-term actions identified for inclusion into the final Action Agenda.

Key Threats/Pressures

In 2008, the Whidbey Action Area identified the following threats/pressures to the ecosystem. Work has not yet been completed in the Snohomish and Stillaguamish watersheds to identify if any additional threats are present or if those items identified in 2008 are no longer a threat, though some have begun this thinking/work while updating the strategies for the Action Agenda. Once a Local Integrating Organization is formed, there will be a more robust conversation around what the threats are to the area, and prioritization of these threats.

Threats identified in 2008, from the Whidbey Basin Profile include:

Habitat alteration

- **Marine/estuary:** Loss of estuary tidal marsh and habitat connectivity, with more than 80 percent of the Snohomish, approximately 75 percent of the Skagit, and 85 percent of the Stillaguamish estuaries diked, cutting off tidal marshes and blind tidal channels; only 18 percent of historic wetlands remain; potential future impacts from tidal power generation.
- **Shorelines:** Development along lake shorelines, resulting in reduced habitat availability, increased heterogeneity, nitrification, and increases in invasive species and toxic algal blooms.
- **Marine nearshore:** 38 percent of marine shoreline armored; over 5,000 overwater structures; 5.6 miles of railroad grade; disconnected feeder bluffs and pocket estuaries, development in sensitive areas.
- **Freshwater:** Loss of large river habitat complexity and floodplain connectivity from diking, riparian clearing, and floodplain development, reducing wood debris jams, side-channels, forested islands and pools.

- **Uplands:** Loss of working farms and forests through conversion resulting in altered basin hydrology and degraded habitat; 16 percent increase in impervious surface in Snohomish watershed from 1991-2001; potential future development pressure in nearshore, river valley and upland areas.

Pollution

- **Toxics:** Groundwater contamination leaching from past industrial development.
- **Bacterial pollution:** 48 percent of impaired waters listings due to bacterial pollution; shellfish harvest closures in Holmes Harbor, Penn Cove, Samish Bay, Similk Bay, and Port Susan.
- **Nutrient loading:** Contributes to eutrophication and naturally occurring low dissolved oxygen concentrations in Penn Cove, Saratoga Passage, Possession Sound; dissolved oxygen and temperate concerns found in streams.
- **Surface water runoff impacts:** Pollutant loading from urban stormwater and agricultural runoff; emerging pre-spawn fish mortality concern.

Freshwater resources

- **Limited water availability** for people, farms, and fish: Low summer flows in Water Resource Inventory Areas (WRIAs) 5 & 7.
- **Altered** magnitude, frequency and duration of **peak flow events** in WRIAs 3, 4, 5 & 7.
- **Alteration of surface hydrology:** Major alterations for flows in Skagit and Sultan rivers below dams.
- **Increased freshwater demand** from more people, resulting in decreased aquifer levels, saltwater intrusion, and decreased groundwater discharge.

Invasive species

- Potential negative ecological impacts on native populations: Japanese knotweed, Spartina, purple loosestrife.

Artificial propagation

- **Unknown impacts of hatchery production** on existing steelhead and other salmonid species threaten viability.
- **Unknown Impacts from straying hatchery** stocks in the Snoqualmie watershed.

Harvest

- **Fishing and bycatch, logging, and hunting practices:** Fishing and poaching; other local pressures need to be identified.

Localized climate change impacts

- **Sea level rise:** significant change and loss of estuarine habitat in Snohomish, Stillaguamish, and Skagit estuaries; significant loss of Whidbey Island beaches; risk of salt water intrusion; potential loss of floodplain capacity from diking.
- **Changes in hydrology** due to reduced snow pack and forest cover.

Other

- **Increase in population by 2025:** 49 percent in Skagit, Island, Snohomish counties (over 380,000 people).
- **Toxic algal blooms** in lake systems.

Opportunities, Priorities, and Near-Term Actions

The Stillaguamish-Snohomish area is working on developing strategies related to their unique needs and ecological conditions. Identification of prioritized strategies and actions will be the focus of LIO as soon as it is established. The following is a working list of over 100 strategies brainstormed by the ad hoc group.

Updated Initial Strategies and Actions

Protect and Restore Terrestrial and Freshwater Ecosystems

Smart Growth, Development, Land Use and Land Protection.

Focus land development away from ecologically important and sensitive areas**

- Use and increase site-appropriate low impact development (LID) techniques to manage for future planned growth and improve past practices
- *Solidify wetland protection, connection, and restoration components as part of stormwater retrofits in Comprehensive Plans by 2015, to create increased water storage in agricultural fields and decrease runoff (repeated in A3, B2 and C3)

Permanently protect the intact areas of the Puget Sound ecosystem that still function well**

- Protect intact mainstem rivers
- Protect unique rearing and spawning areas (for salmon, and forage fish), and important shorebird habitat
- *Identify and protect 100 percent of existing unarmored shoreline (in the Port Susan Marine Stewardship Area (MSA))
- Implement acquisition projects to protect intact habitat and/or purchase high priority sites for future restoration
- Protect degraded habitats with high potential or areas that are critical to long-term ecosystem function

Protect and steward ecologically sensitive rural and resource lands**

- Harmonize clearing and grading ordinances throughout Whidbey Basin and support enforcement of these ordinances
- Support extension, property tax incentive programs and transfer of development rights/purchase of development rights in high-priority rural residential areas at high risk of conversion
- Provide technical assistance to landowners of working lands
- Integrate small farms (such as horse farms or grass-fed beef farms) into current programs
- Continue to work cooperatively with farming community to develop a coordinated restoration and mitigation strategy that balances the needs of agriculture, fish, and flood protection
- Promote collaboration of salmon recovery watershed groups with the Snohomish and County Agricultural Advisory Board, King County Agricultural Commission and other farming groups

- Provide state recognition to jurisdictions that protect forest cover under National Pollutant Discharge Elimination System (NPDES) permitting for stormwater benefits (repeated in C4)
- Support and implement food security strategies that foster the long-term protection of working farms (including bringing forward a new generation of farmers, supporting more ecologically sensitive growing techniques, regulatory integration, and seed banks)
- *Solidify wetland protection, connection, and restoration components as part of stormwater retrofits in Comprehensive Plans by 2015, to create increased water storage in agricultural fields and decrease runoff (into Port Susan MSA)
- *Encourage the local and organic food movements: Farm Link connects Snohomish Farm Incubator graduates with local properties to encourage incoming farmers to promote stewardship and environmentally friendly techniques. (Puget Sound Fresh also promotes local produce organic farms and community supported agriculture (CSAs))

Encourage compact regional growth patterns and create dense, attractive and mixed-use and transit-oriented communities**

- Support local governments in meeting Growth Management Act (GMA) requirement updates
- *Encourage 90% of future growth in Urban Growth Areas (UGAs) by 2020 (within the Port Susan MSA)

Protect and restore floodplain function**

- Implement large-scale floodplain projects to remove bank armoring, re-connect side channels and provide mainstem rivers with ability to migrate and create diverse instream habitat
- Complete necessary modeling and planning coordinating flood management and habitat improvement
- By 2017, develop and implement a risk contingency program for restoration projects that provides landowner assurances, ensures project effectiveness and improves funding efficiency of restoration projects.

Restore Key Terrestrial and Freshwater Habitats.

Adapt, where necessary, and implement and maintain freshwater and upland restoration projects**

- Implement Salmon Recovery three-year work plan (WRIAs 5 & 7)
- Support engagement of community in restoration and maintenance, as appropriate and in coordination with the volunteer efforts described in the three-year work plans
- Implement restoration components of the shoreline management plans
- Develop a contingency fund to resolve unanticipated post-project impacts on adjacent properties if they occur (thus alleviating landowner concerns)
- *In areas that have degraded flood protection infrastructure along the Snohomish, Stillaguamish, Snoqualmie and Skykomish Rivers, construct set-back dikes that ensure that fields behind the setbacks will be better protected and return a portion of the original property to tidal marsh (*within the Port Susan MSA*) (*repeat in the Estuary/nearshore strategy*)

Mitigation that works**

- By 2015, seek to align recovery and habitat protection with mitigation funding by developing an agreement on how to count mitigation funding and activity toward restoration targets, where feasible and effective.
- Few strategies currently identified, requiring review and improvement.

Sustain Freshwater Availability for Instream Flow and Human Uses.

Protect and conserve freshwater resources to increase and sustain water availability for instream flows**

- Implement flow rules and programs in all basins
- Upgrade instream flow rule in Snohomish Basin
- Explore instream flow solutions including: 1) strategies to protect & enhance hydrologic function of mature forests; and 2) work to address low flows in concert with meeting agricultural irrigation needs
- Track Federal Energy Regulatory Commission licensing and hydropower projects in basin, and implement existing agreements in close coordination with other ecosystem strategies
- Investigate how to close sensitive basins from exempt wells based on best available science
- Examine effects of small-scale hydro projects on instream flow
- Examine effects of expected high flows, given current estimates based on climate science, on fish and humans
- Evaluate the effectiveness of instream flow rules in meeting their stated objectives
- Consider transferring surface water rights from tributaries to mainstems to improve tributaries' summer instream flows
- Investigate alternative water sources for different locations
- Integrate the Washington Department of Fish and Wildlife (WDFW) and the Washington Department of Ecology (Ecology) watershed characterization elements
- Encourage and implement irrigation efficiency projects on agricultural lands
- Incorporate the use of waste water on working lands to reduce other water source (in-stream or wells) needs
- Provide support for the King and Snohomish Counties groundwater education program
- In accordance with the Port Susan strategy: move toward closure of basins to future exempt wells
- In the Stillaguamish watershed, evaluate the risk to base flow that could result from gravel mining of mineral resource lands and develop overlays of important ecosystem components (e.g. coldwater springs, fish use, and mineral resource identified lands)

Protect and Recover Salmon.

Protect and Recover Salmon**

- Implement the WRIA 5 Chinook Recovery Plan
- Implement the WRIA 7 Chinook Recovery Plan
- Implement actions from the Port Susan Marine Stewardship Area plan (described

elsewhere in this document), where salmon are a target.

Protect and Recover other Native Terrestrial and Freshwater Species.

Implementation of other plans in a coordinated way and maintenance and enhancement of biodiversity**

- *No strategies currently identified.*

Prevent and respond to the introduction of freshwater and terrestrial invasive species**

- Continue local efforts to identify and eradicate invasive species impairing habitat and agricultural productivity

Protect and Restore Marine and Marine Nearshore Ecosystems

Nearshore Growth, Working Waterfronts, and Marine Protection.

Use anticipated population and economic growth as a catalyst for recovery by building on existing efforts to establish protection and restoration priorities**

- Complete and implement Shoreline Master Program updates on schedule
- With regional support, seek to strengthen protection of non-armored shorelines.

Protect and conserve relatively intact ecosystems to maintain the health of Puget Sound**

- Evaluate need to protect ecosystem processes and quality of life needs when considering tidal energy projects
- Protect high value habitat: unique spawning areas, juvenile rearing areas, eelgrass beds, and bird habitats
- Implement the Port Susan marine stewardship strategies
- Maintain spawning areas for forage fish
- *Identify and protect 100 percent of existing unarmored shoreline (in the Port Susan Bay MSA planning area)
- Protect the marine riparian corridor
- Support policy that will allow railroads to deposit landslide sediment in the nearshore zone
- *Solidify wetland protection, connection, and restoration components as part of stormwater retrofits in Comprehensive Plans by 2015, to create increased water storage in agricultural fields and decrease runoff (in the Port Susan MSA planning area)
- *Protect remaining natural shoreline by encouraging soft shore armoring in bulkhead retrofits and where armoring is necessary (in the Port Susan MSA)

Restore Marine and Marine Nearshore Areas.

Implement and maintain priority nearshore and marine ecosystem restoration projects**

- Implement Salmon Recovery three-year work plan (WRIAs 5 & 7)
- Implement restoration components of the shoreline management plans
- Prioritize and strategically remove derelict gear following the work of the Northwest Straits Initiative
- Complete large scale estuary restoration projects in the Snohomish, and Stillaguamish rivers and meet restoration targets set in the salmon recovery plans

- Implement large-scale shoreline and nearshore projects to remove bank armoring where appropriate and/or use "green" armoring techniques, re-connect side channels and provide mainstem rivers with ability to migrate and create diverse instream habitat
- Implement small scale nearshore restoration and beach nourishment projects. Where possible, align these projects with other assessments (e.g., Mukilteo to Everett sediment nourishment study, Puget Sound Nearshore Ecosystem Restoration Partnership)
- Work with state and regional partners to create a state-level contingency fund for large projects to reduce project costs incurred from designs that account for low-probability contingencies
- *In areas that have degraded flood protection infrastructure, construct set back dikes that ensure that fields behind the setbacks will be better protected and return a portion of the original property to tidal marsh (in the Port Susan MSA)
- *Create design standards for soft-shore armoring or adopt existing standards from another Puget Sound location/ Marine Resources Committee facilitate implementation of education programs targeted at contractors, engineers, realtors and landowners to encourage soft armoring and bioengineering, and raise awareness about the impacts of shoreline hardening by 2015 (in the Port Susan MSA)

Support economic viability of working waterfronts to help maintain ecosystem function and sustain quality of life**

- *No strategies currently identified.*

Improve public access to Puget Sound**

- *No strategies currently identified.*

Protect and Recover Native Marine Species.

Protect and recover marine and nearshore species**

- Continue marine species studies and recovery work initiation by the Marine Resources Committee for mussels, forage fish, and Dungeness crab.

Fill Key Science and Information Gaps for Marine and Nearshore.

Prevent and respond to the introduction of marine invasive species**

- Continue local efforts to identify and eradicate invasive species impairing habitat
- Monitor and assess marine invasive species impact on native populations

Reduce and Control the Sources of Pollution to Puget Sound

Prevent and Reduce Toxic Loadings into Puget Sound.

Reduce the sources of toxic chemicals entering Puget Sound**

- Implement Watershed Management Plans addressing temperature, dissolved oxygen, mercury, and bacteria impairments. Encourage collaboration between state agencies and watershed groups
- Support hazardous waste education/technical assistance programs for businesses
- *Remove all project area waters from the Clean Water Act 303(d) list for fecal coliform and nutrients and prevent agri-chemicals from entering project area waters by 2015 (in the Port Susan MSA)

- *Prevent introduction of any agri-chemicals into surface waters from commercial/residential landscaping by 2015 (in the Port Susan MSA)
- By 2014, identify high priority sites for biogas digesters and seek to build them.

Control and Manage Stormwater.

Use a comprehensive approach to manage urban stormwater runoff at the site and landscape scales**

- Implement NPDES permits
- Begin private and public stormwater retrofits in dense urban and suburban areas
- Support site-appropriate LID and LID retrofits in small rural cities and suburban sub-basins (including rain gardens)
- Implement upland stormwater projects that reduce the impact of stormwater and pollutants on flood plain activities

Agricultural runoff**

- Provide support for technical assistance and cost-share programs for small farms and commercial agriculture to improve and integrate agricultural nutrient management
- *Solidify wetland protection, connection, and restoration components as part of stormwater retrofits in Comprehensive Plans by 2015, to create increased water storage in agricultural fields and decrease runoff (in the Port Susan MSA)
- Implement strategies to keep livestock out of streams
- Evaluate benefits of a King County Livestock Ordinance
- Provide technical resources for off-stream watering of livestock
- Develop livestock exclusion ordinances to protect water quality in the basin where needed.

Surface runoff from Forest Lands**

- Provide state recognition to jurisdictions that protect forest cover under NPDES permitting for stormwater benefits
- Implement forest road improvements and decommission forest roads where feasible.
- Develop strategies to provide better infiltration and water storage in the uplands of the Snohomish Basin, per the Snohomish habitat protection (EPA-funded) project.

Prevent Pathogen and Nutrient Loadings into Puget Sound.

Prevent, reduce and/or eliminate pollution from decentralized wastewater treatment systems**

- Support local efforts to identify and control sources of pollution from on-site septic systems (OSS)
- Create policies for OSS operations and maintenance (O&M); encourage enhanced nutrient treatment technologies for OSS
- Increase funding to standardize OSS O&M programs; develop a Puget Sound-wide low-interest low program to provide funding for OSS O&M programs
- Provide a stronger regulatory backstop to encourage participation in voluntary programs.

Prevent, reduce and/or eliminate pollution from centralized wastewater treatment systems**

- *No strategies currently identified.*

Rethink how we plan for and approach wastewater control and management**

- *No strategies currently identified.*

Control and manage pollution from discharges of wastewater from boats and vessels**

- *No strategies currently identified.*

Improve shellfish water quality and increase harvestable, upgraded shellfish acres in commercial production and use; coordinate, expand and promote financial incentives and programs for working aquatic lands that are protective of ecosystem health to provide abundant shellfish for commercial, subsistence, and recreational harvest consistent with ecosystem protection**

- Implement shellfish protection programs
- Explore opportunities to open shellfish areas that are conditionally closed by Washington Department of Health
- Develop strategies for sediment and hydrologic changes that will affect shellfish. Develop further science that identifies the key threats to climate change on shellfish and seek to implement actions that mitigate these threats.
- Continue to implement programs that improve water quality and prevent toxics loading.

Effectively prevent, plan for and respond to oil spills**

- Implement the Marine Resources Committee's tiered recommendations for Snohomish County oil spill response and prevention
- *By 2014 orchestrate local, state, and federal response to mitigate unintended damages from spill response related impacts to intertidal habitats (*in the Port Susan MSA*)

Address and Clean Up Cumulative Water Pollution Impacts in Puget Sound**

- Remove creosote logs and pilings from high deposition areas in the Snohomish and Stillaguamish basins
- Work with local pollution sources to reduce pollution loading into Puget Sound

Strategies and actions to flow from the BSWP effort**

- Investigate effects of pharmaceuticals on ecosystems
- Consider the Natural Resources Conservation Service (NRCS) work on science in the altered environment for landowner-endorsed conservation measures
- Consider a Snohomish Basin total maximum daily load (TMDL) action plan to address pollution in the Snohomish Basin. Implement the existing Snoqualmie Watershed Water Quality Synthesis Report
- Explore opportunities to identify genetic markers for tracking specific sources of bacterial pollution.

Sustain, Coordinate, and Adapt Puget Sound Recovery Efforts

Capacity Building and Coordination.

Foster collaborative partnerships across partner interests and sectors to advance implementation.**

- Support integration of species recovery, water quality, aquatic reserve and natural resource management plans, shoreline master programs, Snoqualmie Watershed Forum initiatives and Marine Resource Committee strategies; start with salmon recovery, Marine Resources Committee, and water management plans
- Investigate a permit coordination pilot project in the Snohomish Basin
- Support the strategies of the Port Susan Marine Stewardship Area

Cultivate broad-scale practices and behaviors among Puget Sound Residents that benefit Puget Sound.**

- Citizen science programs
- *Encourage the local/organic food movement: Farm Link connects Snohomish Farm Incubator graduates with local properties to encourage incoming farmers to promote stewardship and environmentally friendly techniques (in the Port Susan MSA)
- *Increase landowner awareness of environmental stewardship as it relates to water quality through Snohomish-Camano ECO Net targeted awareness grant (if funded) or other ECO Net resources if necessary (*in the Port Susan MSA*)

Build Issue Awareness and Understanding that fosters beneficial practices and behaviors and removes institutional barriers to those practices.**

- Implement STORM group recommendations
- *Increase landowner awareness of environmental stewardship as it relates to water quality through Snohomish-Camano ECO Net and King County EcoNet targeted awareness grant (if funded) or other ECO Net resources if necessary (in the Port Susan MSA)
- *Implement comprehensive outreach plan to maintain good population structure (?) and reduce loss of fishing gear by 2013 using WDFW crab endorsement funds (*in the Port Susan MSA*)

Build Social and Institutional Infrastructure that fosters beneficial practices and behaviors and removes institutional barriers to those practices.**

- *Increase landowner awareness of environmental stewardship as it relates to water quality through Snohomish-Camano and King County ECO Net targeted awareness grant (if funded) or other ECO Net resources if necessary (repeated in D3) (in the Port Susan MSA).
- Support and enhance existing infrastructure and organizational capacity to engage and enhance stewardship activities (volunteerism, property management stewardship, etc.).
- Identify needed stewardship gaps and fill those gaps working closely with the Snohomish Camano and King County ECO Net membership.
- Develop enhanced relationships with local print media journalist (e.g. Everett Herald, Stanwood Camano News, River Current, Snoqualmie Valley Record, etc.) to generate more Puget Sound related articles.
- Gather and distribute results of multiple audience research efforts to outreach and education practitioners.
- Provide periodic natural resources updates / science news to elected officials.

- Provide training to stewardship organizers to increase their skill set in all facets of effect project implementation.
- Implement STORM group recommendations.
- Provide outreach to Stilly / Snohomish area residents on current problems in Puget Sound.
- Assert relationship between observed Puget Sound problems and resident practices.
- Support youth education efforts that provide Puget Sound ecosystem curriculum or connections with personal action impacts.
- Develop and distribute 'new resident welcome packets' that provide scientifically accurate watershed and local issues education.
- Develop and publicize Stilly - Snohomish speaker resource list to community organizers and educators.
- Prevent firewood harvest out of stream channels and rivers that prevents the accumulations of wood that is needed for salmon recovery.

Implement a Coordinated, Integrated Ecosystem Monitoring Program.**

- Evaluate low dissolved oxygen levels in Possession Sound and develop and implement strategy to address low dissolved oxygen levels if necessary (using lessons learned from Hood Canal).
- Address low dissolved oxygen levels in floodplain tributary streams utilized by salmonids.
- Secure funding for and implement Monitoring Plan priorities.
- By 2013, complete the Snohomish Basin monitoring and adaptive management plan and accompanying business plan. Seek regulatory buyoff from the WA Department of Fish and Wildlife and National Marine Fisheries Service.

Cultivate broad-scale practices and behaviors among Puget Sound residents that benefit Puget Sound.**

- Develop and adopt a menu of shoreline and bluff resident best management practices for consistent messaging.
- Provide technical assistance, at appropriate levels, to residents interested and able to improve the health of Puget Sound.
- Better utilize existing demonstration sites on rain gardens and other low impact development through tours and lectures.
- Develop soft shore armoring demonstration sites at public locations in the Snohomish/Stillaguamish watersheds.
- Publicize multiple benefits of practices and behaviors of priority stewardship practices, including personal benefits.

Develop and secure stable and diverse sources of funding to implement Action Agenda Priorities.**

- Develop alternative stable funding mechanisms, like Watershed Investment Districts.
- By 2017, develop a public/private partnership program that pilots how the private sector can be more actively engaged in recovery efforts.

Climate change information and adaptation.**

- See results of the Whidbey Basin Science Symposium
- By 2013, complete the Snohomish Basin habitat protection strategy (EPA-funded) for hydrology. Initiate implementation of the strategy.

Additional strategies under consideration:

- In the Stillaguamish watershed, evaluate the risk to base flow that could result from gravel mining of mineral resource lands and develop overlays of important ecosystem components (e.g. coldwater springs, fish use, and mineral resource identified lands)
- Further clarify: Investigate alternative water sources for different locations
- Clarify the following strategy: Complete necessary modeling and planning coordinating flood management and habitat improvement
- Reference to Ecology's Port Gardner sediment cleanup project
- Create livestock exclusion ordinance to protect water quality in the basin.
- Prevent firewood harvest out of stream channels and rivers that prevents the accumulations of wood that is needed for salmon recovery
- Add reference to Climate Stewards program, Tulalip Tribes' climate research
- Evaluate expanding the Port Susan Marine Stewardship Area strategies to apply to the rest of the nearshore area.
- Pressure/Threat Rating
- Science Needs Identification

* Indicates an action from the Port Susan Marine Stewardship Area Strategy

** Snohomish and Stillaguamish Watershed developed this list of local strategies within the context of an early draft outline of regional strategies and sub-strategies. Since this list of local strategies was compiled, the regional strategy outline changed. As such, the order and wording may not match what is currently in the Action Agenda. Once the local area has completed their prioritization process, the final list of local strategies will be cross-walked with the most current regional strategies.

Relationship to Recovery Targets

There are many different and complex activities advancing in the Stillaguamish and Snohomish areas that will contribute to the regional recovery targets. Because the LIO was recently established in this area, the focus in the coming year will be on identifying local threats and strategic priorities which describe the local contribution to the Soundwide ecosystem and pressure reduction targets (land development, wastewater, shoreline alteration, stormwater).

Local Implementation Structure

There are a wide variety of partners working in the Stillaguamish and Snohomish watersheds and the Local Integrating Organization was recognized by the Leadership Council in February 2012. This organization is currently working to advance a system that utilizes an executive steering committee, implementation team, and existing watershed council structures.

References and Additional Resources

There are many local partners and organizations critical to advancing recovery in this area. This section will be further developed during the public review period.

Shared Strategy for Puget Sound watershed Profile. Available online at:

<http://shredsalmonstrategy.org>

Snohomish County Surface Water Management:

http://www1.co.snohomish.wa.us/Departments/Public_Works/Divisions/SWM/Work_Areas/default.htm

Snohomish Watershed Salmon Recovery Forum:

http://www1.co.snohomish.wa.us/Departments/Public_Works/Divisions/SWM/Work_Areas/Habitat/Salmon/Snohomish/

Stillaguamish Watershed Council: <http://www.stillaguamish.nsn.us/SIRC.htm>

Snohomish Marine Resources Committee: <http://www.snocomrc.org/>

Snohomish Conservation District: <http://snohomishcd.org/>

King Conservation District: <http://www.kingcd.org/index.php>

King County DNRP: <http://www.kingcounty.gov/environment/dnrp.aspx>

Snoqualmie Forum: <http://www.govlink.org/watersheds/7/>

Sound Salmon Solutions: <http://soundsalmonsolutions.org/>

WSU Extension: <http://snohomish.wsu.edu/>

References

http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Puget-Sound/upload/Ch5_Stillaguamish.pdf

<http://www.fs.usda.gov/mbs>

http://www.co.snohomish.wa.us/documents/Departments/Public_Works/surfacewatermanagement/aquatichabitat/stilliplan/1Introduction.pdf

<http://www.ecy.wa.gov/programs/wr/instream-flows/stillaguamishbasin.html>

http://www.co.snohomish.wa.us/documents/Departments/Public_Works/surfacewatermanagement/snohomishsalmonplanfinal/section4.pdf

http://www.co.snohomish.wa.us/documents/Departments/Public_Works/surfacewatermanagement/snohomishsalmonplanfinal/section4.pdf

<http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/washington/placesweprotect/port-susan-bay.xml>

http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Puget-Sound/upload/Ch5_Snohomish.pdf

<http://www.snocomrc.org/uploads/Factsheets/Eelgrass.pdf>

http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Puget-Sound/upload/Ch5_Snohomish.pdf